



UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)	
David H. Palmer)	Group Art Unit:
)	
Serial No. 10/666,173)	
)	Examiner:
Filed: September 19, 2003)	
)	
For: ELONGATE RECEIVER TUBE AND)	Attorney Docket 1-37091
METHOD OF MAKING THE SAME)	

November 6, 2003

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

DECLARATION OF INVENTOR

Honorable Sir:

I, David H. Palmer, declare the following:

1. THAT, I am the inventor of the subject matter of the above-identified patent application;
2. THAT, from 1996 to present, I have been employed by Jems of Litchfield, assignee of the above application;
3. THAT, my present position with Jems is Vice President and Owner;
4. THAT, under my direction and control, the sample receivers identified below were prepared for comparative testing, to be conducted by Patzip Testing Laboratories;
5. THAT, I developed a test for comparing the relative strength and durability of a cold formed receiver design as manufactured by Jems, a typical welded construction receiver, and a typical hot forged receiver;
6. THAT, the test I developed involved inserting 2.1 inches of a ball mount shank into one end of each receiver tested;
7. THAT, the other end of each of the receivers had a rigidly mounted solid bar inserted therein and welded thereto;
8. THAT, the distance from the end of the solid bar to the end of the ball mount shank

was held constant for each sample, thus removing influence to strength characteristics due to the overall length of each sample;

9. THAT, a load of 7000 pounds was applied on the ball mount shank at a point 8.0 inches from the receiver lip;
10. THAT, all of the sample receivers test were produced from the same steel, namely ASTM 500B;
11. THAT, the permanent change in ball axis or deflection was measured for each sample receiver, the results of which are presented in the attached test report (see test results 1b, 1c, and 1d in the attached test report and see Exhibit A attached for the test setup for each sample receiver);
12. THAT, a visible crack was observed in each of the welded sample receiver and the hot forged sample receiver;
13. THAT, no cracks or other defects were observed in the cold formed sample receiver as produced by Jems;
14. THAT, the cold formed sample receiver as manufactured by Jems was designated as Design #1, the dimensions as tested being two inches square internal diameter, 7.75 inches long, and a wall thickness of 0.24 inches;
15. THAT, the welded construction sample was designated as Design #2, the dimensions as tested being two inches square internal diameter, 7.8 inches long, and a wall thickness of 0.23 inches;
16. THAT, the hot forged construction sample was designated as Design #3, the dimensions as tested being two inches square internal diameter, 6.75 inches long, and a wall thickness of 0.23 inches;
17. THAT, the wall thicknesses of all receivers represent the standard wall thickness for the type of sample used in the industry and the tolerances allow for +/- 10 percent for use in the industry; and
18. THAT, a slight wall thickness increase occurs in the production of the cold formed receiver as manufactured by Jems, which is the reason for the slightly larger wall thickness over the welded and hot forged receivers;
19. THAT, due to the improved strength of the cold forged receiver produced according to the method as claimed in the above-identified patent application, substantial

commercial success has been experienced;

20. THAT, approximately one million receiver tubes produced according to the method as claimed in the above-identified patent application have been sold to date; and
21. THAT, as shown in the test report, a significant difference with respect to strength is achieved by producing a receiver in accordance with my invention.

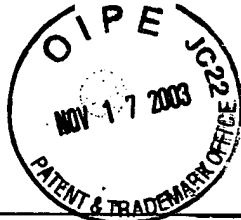
I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States code, and that such willful false statements may jeopardize the validity of the above-referenced application or any patent issuing thereon.

Date: 11/7/03

David H. Palmer

David H. Palmer

STORK®



Twin City Testing Corporation

PROJECT NUMBER: 3618 200-8888

PAGE: 1 of 4
DATE: January 15, 2001

PATZIG TESTING LABORATORIES
3922 Delaware Avenue
Des Moines, Iowa 50313-2597

REPORT OF HITCH TESTS
In Accordance With Customer Requirements
Weight Carrying (Tongue Weight Comparison)
Part No. (3 Designs)

Prepared for:
JEMS OF LITCHFIELD, INC.
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Client Purchase Order Number: 455

Prepared by:

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Reviewed by:

Timothy B. Cox

Timothy B. Cox, P.E.
Product Service Manager
Mechanical/Metallurgical Dept.

The test results contained in this report pertain only to the samples submitted for testing and not necessarily to all similar products.

AS A MUTUAL PROTECTION TO CLIENTS, THE PUBLIC AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL INFORMATION OF CLIENTS, AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS OR EXTRACTS FROM OR REGARDING OUR REPORTS IS RESERVED PENDING OUR PRIOR WRITTEN APPROVAL.

An Affirmative Action



Equal Opportunity Employer

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DATE: January 15, 2001

REPORT OF HITCH TESTS

INTRODUCTION:

This report presents the results of tongue load tests performed on three different designs of receiver tube in accordance with our clients request. This work was requested by Dave Palmer of JEMS of Litchfield, Inc. The product was received on December 12, 2000 with the work conducted on January 11 and 12, 2001.

SUMMARY OF RESULTS:

The three designs allowed the following change in ball axis when tested under identical loading conditions.

Description / Design	Change in Ball Axis, Degrees
JEMS (crimped collar))	16
Standard (welded collar)	17
Hot Forged (forged collar)	15

SAMPLE DESCRIPTION:

Device / Application: Hitch, Three different receiver tube sections - each with a different design of reinforced lip.

Design No. 1 JEMS

Characteristic Design: Nominal 2" sq. I.D., 7.75" long (0.24" wall), with a crimped lip construction.

TEST RESULTS:

5" of the test ball mount shank was inserted into the sample and pinned		
Direction	Load, 6.0" from receiver lip (lbs.)	Permanent Change in Ball Axis (degrees)
a. Downward (Tongue Load)	12,800	2

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TEST RESULTS: (Design No. 1 -continued) *JEMS*

2.1" of the test ball mount shank was inserted into the sample (not pinned and with tube seam to the side)		
Direction	Load, 8.0" from receiver lip (lbs.)	Permanent Change in Ball Axis (degrees)
b. Downward (Tongue Load)	7,000	16

Note: No visible cracks appeared in the lip area in the receiving tube.

Design No. 2 *WELDED COLLAR*

Characteristic Design: Nominal 2" sq. I.D., 7.8" long (0.23" wall), with a weld-on lip construction.

TEST RESULTS:

2.1" of the test ball mount shank was inserted into the sample (not pinned and with tube seam to the side)		
Direction	Load, 8.0" from receiver lip (lbs.)	Permanent Change in Ball Axis (degrees)
c. Downward (Tongue Load)	7,000	17

Note: A visible crack appeared in one bottom corner of the lip area in the receiving tube.

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TEST RESULTS: (-continued) *HOT FORGED*

Design No. 3

Characteristic Design: Nominal 2" sq. I.D., 6.75" long (0.23" wall), with a hot forged lip construction.

TEST RESULTS:

2.1" of the test ball mount shank was inserted into the sample (not pinned and with tube seam to the side)		
Direction	Load, 8.0" from receiver lip (lbs.)	Permanent Change in Ball Axis (degrees)
d. Downward (Tongue Load)	7,000	15

Note: Visible cracks appeared in both bottom corners of the lip area in the receiving tube.

DISPOSITION OF SAMPLES:

The test samples will be discarded thirty days from the date of this report unless further instructed by the client.



SERIAL N°: 10/096,231

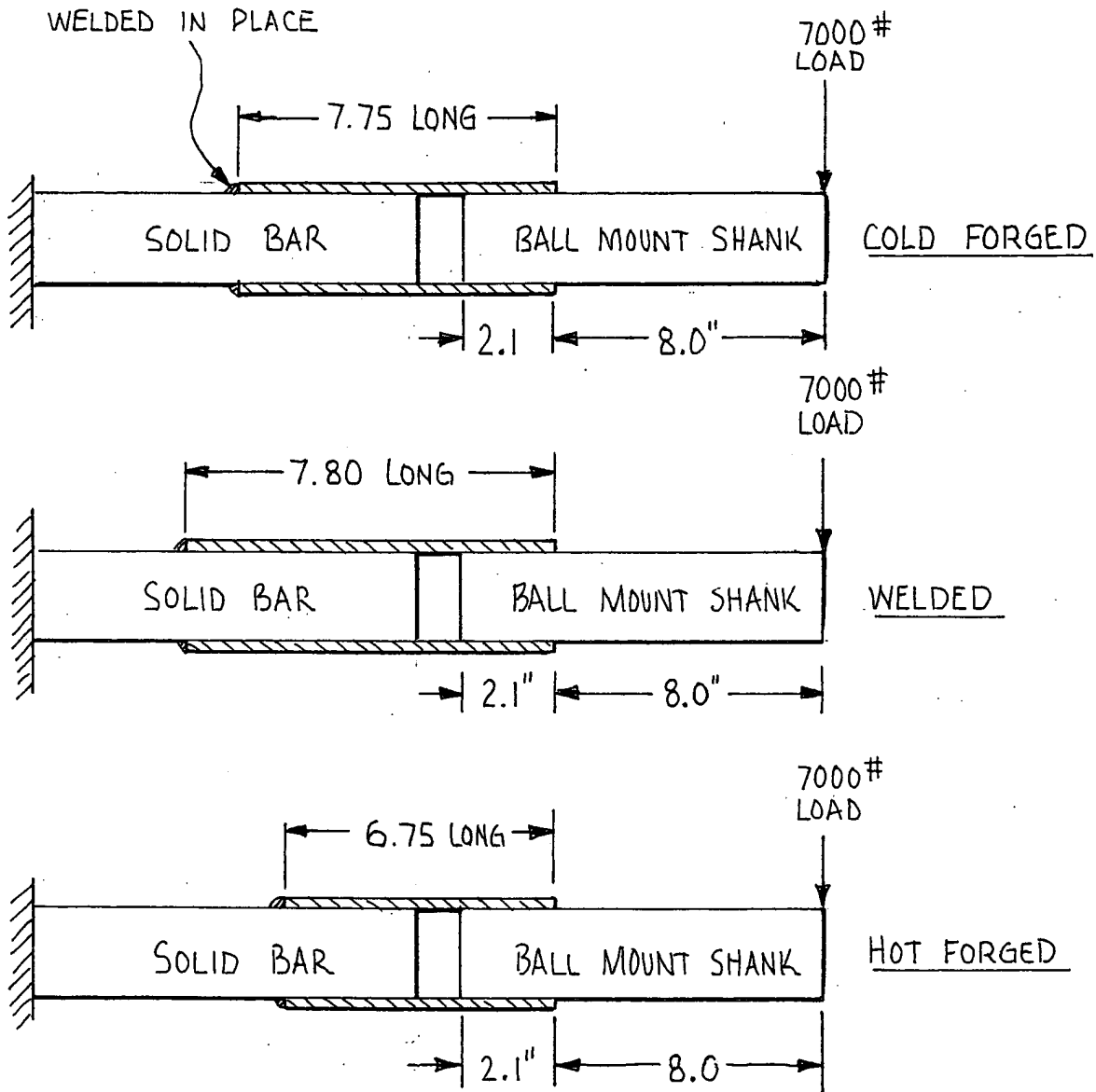


EXHIBIT A



CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify that this document is being deposited with the United States Postal Service as first class mail in an envelope addressed to:
Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date set forth below.

Chun Hill
(signature)
Date of signature November 14, 2003

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November 14, 2003

Mail Stop Non-Fee Amendment
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

REMARKS IN SUPPORT OF INVENTOR'S DECLARATION

Honorable Sir:

Please supplement the above-identified application as indicated on the following pages.

Respectfully submitted,

James D. Miller
Reg. No. 46,932

MacMillan, Sobanski & Todd, LLC
One Maritime Plaza, Fourth Floor
720 Water Street
Toledo, Ohio 43604
(419) 874-1100

REMARKS

The following remarks are filed in support of the attached Declaration of Inventor.

The novel elongate receiver tube invented by applicant is a product which maximizes strength and durability, while simultaneously reducing the production costs. The characteristics of the improved receiver tube are evidenced in the attached comparative testing report which compares the applicant's structure using cold forging (Jems), a welded collar structure, and a hot forged structure. In support of the improved characteristics detailed in the testing report, a Declaration of Inventor is also attached. The Declaration sets forth facts concerning the testing of the product and the test results. During the testing, no cracks appeared in applicant's structure. However, cracks did form in the welded and hot forged receivers tested.

The novel elongate receiver tube represents a significant improvement over receiver tubes of the prior art. Substantial commercial success has been experienced by applicant as evidenced by the fact that approximately one million of the receiver tubes of the invention have been sold. The commercial success is due to the improved strength and durability characteristics, as well as the minimized production costs.

Should the Examiner feel it desirable to further explore the information discussed above or included in the Declaration of Inventor, Applicant requests that an interview be arranged with the Examiner in a sincere effort to expedite the prosecution of the application. In this regard, should the Examiner consider such an interview with the applicant present, it is requested that the Examiner contact applicant's attorney by telephone.